

### **ABSTRACT**

A delta sigma modulator based analog to digital converter is presented, having a first quantizer and a digital error feedback system comprising a second quantizer and a digital bandpass noise shaping system. The second quantizer provides a second quantized output to the noise shaping system according to the first quantized output, the system analog input, and the noise shaped feedback signal. The digital noise shaping system provides a feedback signal to the first quantizer according to the second quantized output, where the feedback signal is bandpass noise shaped with respect to a quantization error of the first quantizer.

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